

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

By way of this amendment, claim 1 has been amended and claims 22 and 23 have been canceled. Thus, claims 1-21 and 24-41 are pending. Claim 1 has been amended to indicate that multiple properties are present and, further, the toluene extractable level property has been deleted. Full support for this amendment can be found in claim 1 as originally filed and in the present application, for instance, starting at page 6, line 20 of the present application. Accordingly, no questions of new matter should arise and entry of this amendment is respectfully requested.

Rejection of Claims 1, 2, 4, 5, 7-11, 22, 23, 26, 28-30, and 34 under 35 U.S.C. §102(b) and §103(a) -- van Konynenburg et al.

At page 2 of the Office Action, the Examiner rejects claims 1, 2, 4, 5, 7-11, 22, 23, 26, 28-30, and 34 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over van Konynenburg et al. (U.S. Patent No. 4,775,778). The Examiner refers to col. 6 and col. 13 of van Konynenburg et al., and in particular, the carbon black identified as Regal 660, which the Examiner alleges has an "area" of 112 and a "size" of 17 nm. The Examiner further asserts that van Konynenburg et al. teaches an overall particle size of 80 nm, which the Examiner asserts meets the 325 mesh limitation of claim 1. The Examiner does admit that van Konynenburg et al. does not explicitly teach an iodine number, but the Examiner asserts that iodine numbers and nitrogen values "roughly correspond." Further, the Examiner asserts that concerning claim 22, the ash and sulfur values appear within the range of conventional carbon blacks. The Examiner did not cite any reference with regard to this assertion. For the following reasons, this rejection is respectfully traversed.

Van Konynenburg et al. does not teach or suggest the claimed invention. With respect to the Examiner's reasoning for rejecting the claims, the applicants respectfully disagree with the Examiner's assumptions with respect to the correlation between surface area and iodine number, as well as the assumptions made regarding ash content, total sulfur content, and the 325 mesh residue.

In particular, the Examiner relies on van Konynenburg et al., and in particular col. 6 and col. 13 relating to Regal 660 carbon black. The Examiner asserts that van Konynenburg et al. describes an area of 112 and a size of 17 nm. However, it is respectfully noted that in van Konynenburg et al., no ASTM methods are described. There is a reference to an article at col. 6, beginning at line 45, but no test procedures are identified. The test procedure used to measure various parameters can be quite relevant, since different test procedures can lead to different results. Thus, it is unclear with respect to van Konynenburg et al. whether a fair comparison can even be made with the parameters set forth in claim 1 of the present application. It is noted that in the application, ASTM test numbers are provided for each parameter, for instance, for particle size, ASTM test procedure D3849-89 is used. Moreover, when particle sizes on the order of nanometers are described, using a different test procedure can shift the measurement several nanometers and can be sufficient in being quite different from the ranges provided in the claimed invention.

In addition, with respect to the Examiner's assertion that iodine numbers and nitrogen values "roughly correspond," the Examiner has provided no evidence to make such a statement. Furthermore, the applicants respectfully disagree with this statement. If iodine numbers and nitrogen values correspond to each other, there would be no reason to have each test and yet the carbon black industry clearly measures carbon blacks using both tests. To further prove this point, the applicants attached a copy of an article on carbon black from the *ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY*, Vol. 4, 4th Ed., 1992, which summarizes the various test methods for surface area

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

and other analytical methods. As can be seen, iodine adsorption is based on the amount of iodine adsorbed from an aqueous solution, wherein nitrogen surface area, such as BET surface area, is calculated from the amount of adsorbed nitrogen at liquid nitrogen temperature. The attached chart from the ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY, namely Table 7, further shows that iodine numbers can be different from nitrogen surface area. Accordingly, the Examiner's assumptions and justification for the rejection are not supported technically.

With respect to the Examiner's assumptions regarding the size of the carbon black and 325 mesh residue, the Examiner has not provided any technical reasoning why this assumption would be correct. Not knowing the test procedure, van Konynenburg et al. states that the carbon blacks have a maximum size of 80 millimicrons. While this is referenced as a maximum size, such language does not address a 325 mesh residue. From reading van Konynenburg et al., it appears that this parameter was not measured and, therefore, it would be completely unknown what the 325 mesh residue would be in the carbon black of van Konynenburg et al.

Moreover, the reference to a maximum size of 80 millimicrons is a reference to the particle sizes that would be identified in Table 1. These sizes, at best, would be average particle sizes and clearly average particular sizes do not provide any information whatsoever regarding a 325 mesh residue. Van Konynenburg et al. did not invent any new carbon blacks and simply is using commercially-available carbon blacks as shown in Table 1 of van Konynenburg et al. Thus, the portion of col. 6 relied upon by the Examiner does not relate to a particle size distribution or to a maximum upper limit for particle size and simply refers to the particle size as provided in Table 1, which would be an average particle size although the measurement technique is unknown.

With respect to the ash content and total sulfur content, the Examiner asserts that this would appear to be within the range of conventional carbon blacks. However, the Examiner has provided

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

no references to support this position. Clearly, van Konynenburg et al. does not teach or suggest any sulfur contents or ash contents, and did not consider it relevant from the standpoint of performance of the carbon black in polymer compositions. Since the Examiner has provided no evidence in the form of prior art to show that ash levels and sulfur levels are conventional as set forth in the claims, and since van Konynenburg et al. does not provide such information, clearly a *prima facia* case of obviousness has not been established.

With respect to claim 34, which is dependent on claim 1 and recites a CDBP of less than or equal to 102 cc/100 g, the Examiner did not explain the reasoning for this rejection. It does not appear that van Konynenburg et al. provides any crushed DBP values. It is respectfully noted that a crushed DBP value is quite different from a DBP value.

Furthermore, with respect to the Examiner's statement that the burden is upon applicant to show a difference when the Examiner has found substantially the same product, the applicants respectfully traverse this position since the Examiner, as shown above, has not found substantially the same product as claimed based on the numerous differences set forth above.

Accordingly, for these reasons, this rejection should be withdrawn.

Rejection of Claim 27 under 35 U.S.C. §103(a) -- van Konynenburg et al.

At the bottom of page 2 of the Office Action, the Examiner rejects claim 27 under 35 U.S.C. §103(a) as being unpatentable over van Konynenburg et al. The Examiner asserts that van Konynenburg et al. does not state the type of polyethylene, but that it would be obvious because it would meet the requirements of the polymer needed. For the following reasons, this rejection is respectfully traversed.

Claim 27 of the present application is dependent on claim 4, and ultimately dependent on

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

claim 1. For the reasons set forth above in the earlier rejection, this claim would also be patentable over van Konynenburg et al. Accordingly, this rejection should be withdrawn.

Rejection of Claims 1-30 and 34-40 under 35 U.S.C. §102(b) -- Sant '250

At page 3 of the Office Action, the Examiner rejects claims 1-30 and 34-40 under 35 U.S.C. §102(b) as being anticipated by Sant (U.S. Patent No. 5,877,250). The Examiner asserts that this reference teaches what appears to be the claimed carbon black and refers to the present specification at page 13. For the following reasons, this rejection is respectfully traversed.

With respect to the reference at page 13 of the present application, the reference to Sant '250 is with respect to the processes that can be used to make "carbon black products." The reference to "carbon black products" at page 13 is simply with respect to the raw materials, as well as the products that can incorporate carbon black, such as the polymer compositions. It is respectfully noted that the term "carbon black products" is referred to when referring to Sant '250 and not the term "carbon blacks." In view of this clarification, Sant '250 does not teach or suggest the carbon blacks of the present invention as set forth, for instance, in claim 1 and the dependent claims.

Further, Sant '250 does not teach or suggest an ash content, sulfur content, or a 325 mesh residue. Sant '250 does not provide any teaching or motivation for one skilled in the art to make carbon blacks having the particular parameters of present claim 1, which includes the ash content, sulfur content, and 325 mesh residue. These parameters simply were not considered relevant in Sant '250 and, therefore, one skilled in the art would not have been motivated to form carbon blacks having these parameters. Also, Sant '250 does not teach the articles of claims 31 and 32. Accordingly, for these reasons, this rejection should be withdrawn.

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

Rejection of Claims 1-30 and 34-40 under 35 U.S.C. §102(b) -- Sant '251

At page 3 of the Office Action, the Examiner rejects claims 1-30 and 34-40 under 35 U.S.C. §102(b) as being anticipated by Sant (U.S. Patent No. 5,877,251). The Examiner asserts that this reference teaches what appears to be the claimed carbon black and refers to the present specification at page 13. For the following reasons, this rejection is respectfully traversed.

With respect to the reference at page 13 of the present application, the reference to Sant '251 is with respect to the processes that can be used to make "carbon black products." The reference to "carbon black products" at page 13 is simply with respect to the raw materials, as well as the products that can incorporate carbon black, such as the polymer compositions. It is respectfully noted that the term "carbon black products" is referred to when referring to Sant '251 and not the term "carbon blacks." In view of this clarification, Sant '251 does not teach or suggest the carbon blacks of the present invention as set forth, for instance, in claim 1 and the dependent claims.

Further, Sant '251 does not teach or suggest an ash content, sulfur content, or a 325 mesh residue. Sant '251 does not provide any teaching or motivation for one skilled in the art to make carbon blacks having the particular parameters of present claim 1, which includes the ash content, sulfur content, and 325 mesh residue. These parameters simply were not considered relevant in Sant '251 and, therefore, one skilled in the art would not have been motivated to form carbon blacks having these parameters. Also, Sant '251 does not teach the articles of claims 31 and 32. Accordingly, for these reasons, this rejection should be withdrawn.

Rejection of Claims 1, 4, 7-9, 22, 23, 25, 26, 29, 30, and 34-36 under 35 U.S.C. §102(b) and §103(a) -- Thielen in view of Probst et al.

At page 3 of the Office Action, the Examiner rejects claims 1, 4, 7-9, 22, 23, 25, 26, 29, 30, and 34-36 under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a)

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

as obvious over Thielen (U.S. Patent No. 5,902,517) in view of Probst et al. (U.S. Patent No. 5,639,817). The Examiner asserts that Thielen, in Table 1, refers to an ENSACO 250 carbon black having a surface area of $65 \text{ m}^2/\text{g}$ and a low volatiles content. The Examiner further refers to col. 1, which makes a reference to low primary particle sizes and resins. The Examiner then relies on Probst et al., Table 2, to assert an iodine content of 47, which the Examiner asserts is about 50 mg/g, a DBP of 160 and a crushed DBP of 92. The Examiner further asserts that the 325 mesh appears met since carbon black is synthesized in a fine powder and the ash and sulfur values appear conventional. For the following reasons, this rejection is respectfully traversed.

With respect to the §102(b) rejection, this rejection appears inappropriate since the Examiner is relying on two references to reject these claims. For this reason alone, the §102(b) rejection should be withdrawn.

With respect to Thielen, the Examiner's justification for rejecting the claims in view of Thielen would not be appropriate. The Examiner appears to appreciate that Thielen does not teach or suggest a particle size for ENSACO 250 carbon black. The Examiner's reference to col. 1, which refers to small primary particle sizes, does not provide any size range and it would be inappropriate to assume that this size range would be no greater than 25 nm. Clearly, the passage at col. 1 would not provide any teaching or suggestion with respect to the primary particle size of not greater than 25 nm. In addition, with respect to the Examiner's position that the 325 mesh residue, ash content, and sulfur values would be "conventional" or that the 325 mesh would be met because the carbon black is characterized as "fine powder," the applicants respectfully disagree with this position. As stated above with the earlier rejections, the 325 mesh residue, ash content, and sulfur value have not been shown to be conventional by the Examiner, and the position of the applicants is that such values are not conventional as presented in the claims in combination with other parameters.

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

Further, the 325 mesh residue recited in claim 1 can in no way be considered obvious in view of Thielen alone or in view of Probst et al. since neither reference provides any comments regarding 325 mesh residues and, in fact, Thielen does not even mention primary particle sizes.

In addition, the Examiner's argument of combining Thielen with Probst et al. would be problematic since the carbon blacks are not similar. For instance, the DBP of the ENSACO 250 carbon black referred to by the Examiner is 190 cm³/100 g, while the DBP of Probst et al. is a maximum of 180 ml/100 g. Clearly, the carbon blacks are different, and one cannot take properties from one type of carbon black and assert that these properties would be present in a different type of carbon black.

Finally, with respect to the Examiner's assertion that the Examiner has found substantially the same product as claimed, the applicants respectfully disagree since, clearly, based on the comments above, the cited art relied upon by the Examiner does not relate to the same product. For these reasons, the rejection should be withdrawn.

Rejection of Claims 1-23, 26-30, and 34-40 -- Non-statutory Obviousness-Type Double Patenting in view of U.S. Patent No. 6,852,790

At page 4 of the Office Action, the Examiner rejects claims 1-23, 26-30, and 34-40 on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 22-53 of U.S. Patent No. 6,852,790. As part of this rejection, the Examiner refers to col. 3 to assert overlapping particle sizes and other properties and refers to col. 8 with respect to polymers. For the following reasons, this rejection is respectfully traversed.

In determining whether a rejection is appropriate on the grounds of non-statutory obviousness-type double patenting, the comparison must be based on a claim versus claim comparison. It is not appropriate to refer to the specification of the patent to make the argument for

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

obviousness. The Examiner's reference to col. 3 and col. 8 of the '790 patent is, therefore, inappropriate and for this reason alone, this rejection should be withdrawn.

Furthermore, the claims of the '790 patent refer to particle sizes no lower than 26 nm and in most cases well above 30 nm. The claims of the present application relate to a particle size of 25 nm or lower. Therefore, comparing the claims of the present application with the claims of the '790 patent, it would not be obvious based on particle size alone. Also, the claims of the '790 patent do not relate to sulfur contents, 325 mesh residues, or ash contents and for this additional reason, the claims of the present application would not be considered obvious in view of the claims of '790 patent. For these reasons, the rejection should be withdrawn.

Rejection of Claims 1-10, 26-33, and 41 -- Non-statutory Obviousness-Type Double Patenting in view of U.S. Patent No. 6,482,386

At page 4 of the Office Action, the Examiner rejects claims 1-10, 26-33, and 41 on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 6,482,386. The Examiner, as part of this rejection, refers to col. 4 of the '386 patent to assert a tube shape in fluffy form, which the Examiner alleges indicates a 325 mesh residue limitation. In addition, the Examiner refers to the Industrial Carbon reference to show that as-synthesized carbon blacks meet the 325 mesh limitation. For the following reasons, this rejection is respectfully traversed.

Again, as specified above, the Examiner relies upon the specification of the '386 patent to formulate this rejection, which is inappropriate when a non-statutory obviousness-type double patenting rejection is made. The comparison must be strictly based on a claim versus claim comparison.

In addition, the claims of the '386 patent make no reference to 325 mesh residues, sulfur

U.S. Patent Application No. 10/620,269
Amendment dated July 20, 2006
Reply to Office Action dated April 20, 2006

levels, or ash contents.

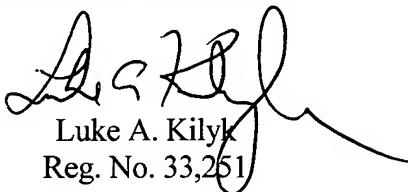
Also, the Industrial Carbon reference relied upon by the Examiner does not provide a 325 mesh limitation of 200 ppm or less. In fact, the only number provided is a weight percent level of from 0.03 to 0.15%, which would be far above a 200 ppm level. Accordingly, for these reasons, this rejection should be withdrawn as well.

CONCLUSION

In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If there are any fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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